

building local capacity and infrastructure in Latin America countries to manage and conserve natural resources. The Maya Project began in 1988 at Tikal National Park in northeastern Guatemala and has expanded each year to date. The project consists of research on natural history of selected raptor species, and a program of monitoring biological diversity of the forest using raptors and other fauna as ecological indicators. Species-level studies involve collecting behavioral, dietary, and telemetry data on raptors. Participants gain much experience in these techniques and receive formal training in ecology and conservation topics. In 1988 the project involved eight local park guards who assisted in the development of raptor and habitat survey techniques. In 1989, one park employee, Julio Madrid, presented a paper at the RRF/ICBP meetings in Veracruz, Mexico. The Maya Project has provided several park guards with scholarships allowing them to finish high school degrees. In 1991, species-level projects were increased; project personnel reached 39 in the park plus 25 outside the park. Julio Madrid of CECON (Centro de Estudios Conservacionistas de la Universidad de San Carlos de Guatemala) became the principal investigator on the Ornate Hawk-Eagle study. In 1991, the Maya Project facilitated participation of two local park guards and one CECON employee in the NOC (Neotropical Ornithological Congress) in Quito, Ecuador, where they presented papers on Swallow-tailed Kites, Mottled Owls, and Ornate Hawk-Eagles. In 1992, several Guatemalans became project leaders for species-level studies on Ornate Hawk-Eagles, Black Hawk-Eagles, Swallow-tailed and Plumbeous Kites, Laughing Falcons, Bicolored Hawks, Collared Forest-Falcons, Barred Forest-Falcons, Mottled Owls, and year-round censuses of raptors as well as heading teams investigating migrant and resident songbirds and vegetation. Hopefully, the training and experience in ecology, scientific research, and conservation that these local people have received will enable them to acquire jobs with the newly developing governmental and non-governmental conservation organizations in the Tikal region, where their knowledge and experience can help create a legacy of enlightened conservation efforts.

BREEDING BIOLOGY, FOOD HABITS AND HOME RANGE OF THE BARRED FOREST-FALCON (*MICRASTUR RUFICOLLIS*) IN GUATEMALA

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We described the first four nests of the Barred Forest-Falcon (*Micrastur ruficollis guerilla*) in 1988 at Tikal National Park, Guatemala. We studied the breeding biology of the Barred Forest-Falcon from 1989 through 1991. Thirty-two nesting attempts were observed from 1988 through 1991. Barred Forest-Falcons are year-round res-

idents and initiated breeding from April to early June, during the dry season. Seventy-two eggs were laid in 26 nests; average clutch size was 2.7 eggs. The incubation period was 35 days from laying of second egg to first hatch ($N = 6$ nests). Overall, 45% of the eggs hatched and 84% of the young fledged. A total of 1.1 young fledged per breeding attempt. Of 28 fully documented nesting attempts, 13 (46%) produced fledged young; 50% of the first nesting attempts ($N = 26$) produced young, and none of the second attempts was successful ($N = 2$). Most reproductive losses in 15 failed nests resulted from egg and female predation ($N = 13$). Survivability of adult breeding females was less than that for adult breeding males. Food habits were based on 587 prey deliveries during the breeding seasons. On a numerical basis, lizards made up 41% ($N = 240$) and birds 14% ($N = 82$) of the diet. Biomass estimates showed lizards (33.6%) and birds (33.1%) to be the most important prey items delivered. The 85% harmonic-mean home range estimates average 1.1 km² for 11 breeding males. In a 16 km² area centered around the main archeological ruins we located 12 breeding pairs and two non-breeding pairs. We learned from radiotelemetry that this species prefers high-ground forest for breeding and foraging; their abundance is much lower in low, open-canopy forest occurring in low-lying parts of the study area. This species has a broad geographical range, lives at high densities, at least in Tikal, occupies a small home range and utilizes mature and old-growth trees for nesting. This species may well be suited as an ecological indicator for lowland dry tropical forests or possibly other types of tropical forests.

AN INVESTIGATION OF THE GENERAL HEALTH AND CONTAMINANT LEVELS OF MIGRANT SHARP-SHINNED HAWKS IN THE EASTERN FLYWAY

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Hawk count stations in the northeastern United States have noted a precipitous decline in Sharp-shinned Hawks (*Accipiter striatus*) since the mid-1980s. The greatest declines have been observed at coastal sites where immature birds comprise 80% of the Sharp-shinned Hawks recorded. Inland count sites, such as Hawk Mountain Sanctuary, where adult birds comprise over 50% of total sharpshins, have only recently begun to note a corresponding decline in this species. The pattern of immatures declining before adults suggests possible widespread reproductive failures. There has been speculation that Sharp-shinned Hawk populations are being adversely impacted by consuming prey contaminated by pesticides. In the fall of 1991, Hawk Mountain conducted a preliminary assessment of the contaminant load of eastern populations of migrating Sharp-shinned Hawks. We analyzed blood samples from migrant